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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/875,916 | 06/08/2001 | Takeshi Okada | 392.1717 | 7079 |

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STAAS & HALSEY LLP
SUITE 700
1201 NEW YORK AVENUE, N.W.
WASHINGTON, DC 20005

EXAMINER

HANSEN, COLBY M

ART UNIT PAPER NUMBER

3682

DATE MAILED: 07/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/875,916

Applicant(s)

OKADA ET AL.

Examiner

Colby Hansen

Art Unit

3682

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 April 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Art Unit: 3682

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 10 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicant's limitation to claim 10 stated, "wherein the crank shaft does not revolve around the input gear". Nowhere within the specification is such a limitation explicitly stated nor a reasoning for such a structure was not disclosed in the original specification. Thus, according to M.P.E.P. 2173.05(I), such a negative recitation is improper and rejected.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto et al (US Pat. 4,690,010) in view of Mauletti (US Pat. 5,606,235).

Matsumoto et al ('010) discloses a joint structure of a robot, comprising:

a first member 71 and a second member 73 connected to each other for relative rotation through a speed reducer 70; and

a motor 2 for driving the second member for rotation relative to the first member, wherein

the speed reducer 70 includes a first-stage speed reducing mechanism 20 and a second-stage speed reducing mechanism 21,

the first-stage speed reducing mechanism 20 includes an input gear 22 connected directly to the shaft 7 of the motor spaced from a center of rotation of the speed reducer (which as an assembly has two axis of rotation; one about 7 and the other about 30; as broadly recited, the crank shaft 30 is attached to the spur gear and is spaced with respect to a center of rotation of the speed reducer 70, which in this case is about the axis of rotation of 7; with respect to claim 1, the first-stage of the speed-reducer 20 is spaced from a center of rotation of the speed reducer, in this case, crankshaft 7) and a single spur gear 25 in mesh with the input gear,

the second-stage speed reducing mechanism includes a crankshaft 30a connected directly to the spur gear, an external gear 29 which engages the crankshaft to be rocked eccentrically, a casing of the speed reducer, an internal gear 28 which is formed inside the casing and is in mesh with the external gear 29, and a rotating member 72 which supports the crankshaft for rotation and can rotate around the central axis of the internal gear with respect to the casing,

the casing (housing of 71 seen in figure 9) of the second-stage speed reducing mechanism is attached to the first member, as broadly recited,

the second member 73 is attached to the rotating member 72 of the second-stage speed reducing mechanism 21, and

the motor 2 is attached to the second member so that the input gear of the motor is in mesh with the spur gear of the first-stage speed reducing mechanism, as broadly recited;

said second member 73 is provided with a mounting portion 4b for mounting the motor in a given position and is attached to the rotating member by a fitting in order to align the axis of the second member with the axis of the output of the speed reducer (fig. 9), and said second member 73 and said rotating member are figured such that the rotational phase of the second member with respect to the rotating member is settled using a positioning pin 46 when attaching the second member 73 to the rotating member 72.

However, Matsumoto et al (US Pat. 4,690,010) does not teach the shaft of the motor being shifted with respect to a center of rotation of the rotating member of the speed reducer.

Mauletti (US Pat. 5,606,235) discloses a robotic gearing arrangement such that the shaft of the motor is shifted with respect to a center of rotation of the rotating member of the speed reducer (fig. 4).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized the shifted arrangement with interceding gear between the motor shaft and the single spur gear as disclosed in Mauletti (US Pat. 5,606,235), as an obvious variant as applicant has not disclosed any particular benefit of such an arrangement.

Furthermore it also would have been obvious to have implemented the shifted arrangement of Mauletti (US Pat. 5,606,235) within Matsumoto et al (US Pat. 4,690,010) so as to utilize an additional gearing ratio for optimum performance while simultaneously being able to locate the motor to best accommodate surrounding elements.

Additionally, such a shifted arrangement of Matsumoto et al (US Pat. 4,690,010) in view of Mauletti (US Pat. 5,606,235) would have been obvious, since it has been held that rearranging parts of an invention involves only routine skill in the art. In re Japikse, 86 USPQ 70.

Matsumoto et al ('010) discloses the claimed invention except for the second member supporting the crankshaft.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have reversed the actuating means such that the motor and gear reduction would be placed within 73, and actuate off of support 71 (thus creating a structure where the second member supports the crankshaft), since it has been held that a mere reversal of the essential working parts of a device involves only routine skill in the art. In re Einstein, 8 USPQ 167.

Matsumoto et al ('010) discloses the claimed invention except for a hollow portion within the joint to allow piping or wires therethrough or the eccentric positioning of the motor.

Mauletti ('235) discloses a robot having a joint structure wherein two members of the robot have a hollow structure inside, and a casing and rotating member are provided with through holes around their common axis so that wiring or piping is secured inside the joint (fig. 7).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized the wire/pipe mounts of Mauletti ('235) within Matsumoto et al ('010) so as to consolidate the space requirements for the pipes/wires as well as to protect said pipes/wires against damage from external elements (e.g. dust, personnel, etc.).

Response to Arguments

Applicant's arguments with respect to claims 1-12 have been considered but are moot in view of the new ground(s) of rejection.

FACSIMILE TRANSMISSION

Submission of your response by facsimile transmission is encouraged. Group 3600's facsimile number is **(703) 305-3597**. Recognizing the fact that reducing cycle time in the processing and examination of patent applications will effectively increase a patent's term, it is to your benefit to submit responses by facsimile transmission whenever permissible. Such submission will place the response directly in our examining group's hands and will eliminate Post Office processing and delivery time as well as the PTO's mail room processing and delivery time. For a complete list of correspondence **not** permitted by facsimile transmission, see MEP. 502.01. In general, most responses and/or amendments not requiring a fee, as well as those requiring a fee but charging such fee to a deposit account, can be submitted by facsimile transmission. Responses requiring a fee which applicant is paying by check **should not be** submitting by facsimile transmission separately from the check.

Responses submitted by facsimile transmission should include a Certificate of Transmission (MEP. 512). The following is an example of the format the certification might take:

I hereby certify that this correspondence is being facsimile transmitted to the Patent and Trademark Office (Fax No. (703) 872-9306) on _____
(Date)

Typed or printed name of person signing this certificate:

(Signature)

If your response is submitted by facsimile transmission, you are hereby reminded that the original should be retained as evidence of authenticity (37 CFR 1.4 and MEP. 502.02). Please do not separately mail the original or another copy unless required by the Patent and Trademark Office. Submission of the original response or a follow-up copy of the response after your response has been transmitted by facsimile will only cause further unnecessary delays in the


Art Unit: 3682

processing of your application; duplicate responses where fees are charged to a deposit account may result in those fees being charged twice.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Colby Hansen whose telephone number is (703) 305-1036. The examiner can normally be reached on Monday through Thursday and every other Friday from 7:30 PM to 5:00 PM (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bucci, can be reached on (703) 308-3668. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-2168.


DAVID A. BUCCI
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600

Colby M. Hansen


Patent Examiner 4/25/04